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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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October 13, 1998

BY HAND

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

**Re: Comments of Harris Corporation
 in CS Docket No. 98-120**

Dear Ms. Salas:

Enclosed for filing please find the original and nine (9) copies of the Comments of Harris Corporation in the above-referenced docket.

Please stamp and return to this office with the courier the enclosed extra copy of this filing designated for that purpose. Please direct any questions that you may have to the undersigned.

Respectfully submitted,

Lawrence R. Sidman

Lawrence R. Sidman

Enclosures

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**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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OCT 13 1998

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)	
)	
Carriage of the Transmissions)	
of Digital Television Broadcast Stations)	CS Docket No. 98-120
)	
Amendments to Part 76)	
of the Commission's Rules)	
)	

**COMMENTS OF
HARRIS CORPORATION**

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October 13, 1998

I. INTRODUCTION

The Harris Corporation hereby submits comments in response to the Commission's Notice of Proposed Rulemaking ("Notice") in the above-captioned proceeding.^{1/}

The Commission consistently has stressed the importance of a *rapid* and *smooth* transition from analog to digital television.^{2/} Harris shares the Commission's strong commitment to this goal and further believes that achieving it is essential to the public interest.

A principal component of an orderly and consumer friendly transition is ensuring that cable subscribers will be able to enjoy the full benefits of vastly enhanced, crystal clear video and CD quality audio, as well as new, interactive services, through their cable systems. More than two-thirds of American television households rely upon cable operators to deliver broadcast and other programming to their homes, but neither cable operators nor the Commission has clearly stated that cable systems will carry digital broadcast signals in a manner that permits all the benefits of those signals to be received by owners of new digital television receivers. For cable customers -- a substantial majority of all viewers -- the incentive to join the digital television revolution through the purchase of a digital television receiver requires that digital broadcast signals be delivered by cable.

Harris considers cable carriage of digital broadcast signals to be an imperative. It urges the Commission to require cable carriage of DTV signals consistent with the provisions of the Communications Act, including a prohibition on cable operators from materially degrading the digital broadcast signals.^{3/}

^{1/} *Notice of Proposed Rulemaking* in CS Docket 98-120, 13 FCC Rcd 15092 (1998).

^{2/} *See, e.g., id.* at ¶ 1.

^{3/} *See* 47 U.S.C. §534(b)(4)(A).

II. STATEMENT OF INTEREST

The Harris Corporation has set the pace for broadcasters' transition from analog to digital broadcasting. Harris is a global communications company with worldwide sales of \$3.9 billion, that provides a wide range of communications products and services. Harris has been involved with the development of DTV since the beginning, having designed and built the test bed that was used to evaluate each of the proposed digital television systems at the Advanced Television Test Center. That process culminated in the Grand Alliance being formed as a cooperative venture, the ATSC standard being adopted by industry for over-the-air broadcasting, and the nearly identical DTV standard being adopted by the FCC to govern the technical characteristics of digital broadcast transmissions.

Today Harris leads the industry in designing and manufacturing the equipment necessary for broadcasters to implement swiftly digital broadcasting. The leader in advanced transmitter equipment, Harris supplies digital transmitters for high-definition TV demonstrations worldwide. Harris built and installed the first commercial digital television exciter and transmitter placed in commercial service in the United States, and provided transmitters and associated equipment for six of the first seven experimental DTV stations. Of the more than 40 stations going digital this November, the vast majority are using Harris transmission equipment. Harris now has signed agreements to supply DTV transmitters to more than 200 television stations in the United States.

III. HARRIS PROMOTES A RAPID AND SMOOTH DIGITAL TRANSITION

Harris has designed and markets a complete line of DTV transmitters and associated equipment which broadcasters require to construct their digital broadcast stations. Harris also provides full technical support for installation and maintenance of its equipment.

Harris has expended considerable discretionary resources to help achieve the public interest goal of a rapid and smooth DTV transition by broadcasters and consumers. Harris partnered with the Public Broadcasting Service (PBS) to sponsor the *HARRIS/PBS DTV Express (DTV Express)* -- a one-of-a-kind road show contained in a 66-foot traveling demonstration vehicle outfitted with a complete DTV studio and viewing area. The objective of the *DTV Express* project is to inform key audiences about digital broadcast television and to educate them on how the industry and consumers can make a rapid, smooth, and cost-effective transition. Each stop of the DTV Express is hosted by a local television station, and key public officials, consumers, and local opinion makers are invited to tour the vehicle.

The demonstration vehicle contains a "Living Room of Tomorrow" and scenarios of a "Classroom of the Future," as well as a complete digital broadcast television facility. In the Living Room of Tomorrow, consumers experience simultaneous viewings on three broadcast reception products: a large screen HDTV projection system, a 34" direct view HDTV monitor, and an NTSC television with a simulated "downconverted" DTV signal. (A plasma screen and computer demonstrate datacasting capabilities.) The demonstration includes a full array of digital products expected to be conveyed by digital broadcast stations: high definition (HDTV) programming, standard definition (SDTV) programming, multicasting, datacasting, and Dolby digital surround sound. The broadcast facility includes information on the transition timetable for broadcasters and information about digital television receivers and digital services for consumers.

The DTV Express has been on the road continuously since its launch in March, 1998, and is scheduled to visit at least 40 cities. At each stop two comprehensive seminars are offered for broadcasters -- a one-day management seminar and a three-day technical seminar.

Harris also has donated equipment to the Smithsonian Institution that permits visitors to compare high definition digital programming with that received on an analog NTSC receiver. The display educates consumers on the differences and informs them about the coming transition.

Finally, Harris has contracted for several independent surveys that explore consumer knowledge and expectations with regard to digital broadcasting. These surveys suggest consumer concerns that can be addressed in this proceeding in order to speed the transition and make it a smoother one for consumers.

IV. MANDATING CARRIAGE OF DIGITAL BROADCAST SIGNALS WILL SPEED THE TRANSITION

In just a couple of weeks, on November 1, 1998, all four major networks and PBS will initiate digital programming feeds and 41 broadcasters in 22 different markets around the country will initiate local digital transmissions.^{4/} Programmers such as CBS have announced exciting new viewing opportunities, including major football games to be broadcast in full high definition both by CBS digital affiliates and by satellite over DirectTV. Two additional direct broadcast satellite providers, USSB and Unity Motion, also have announced plans to carry one or more channels of full high definition programming on a regular basis.

This rulemaking is crucial to the success of the transition. In it, the Commission solicits comment on a wide range of issues that address cable carriage of digital broadcast signals. Cable carriage will facilitate consumer access to the digital broadcast signals. Specifically, the Commission requests comment on a series of options that range from declining to apply any must carry requirement, to phasing in carriage requirements, to applying must carry requirements to all

^{4/} NAB, *Free, Over-the-Air Digital Television: Broadcasters Deliver Digital On-Time* (news release dated Oct. 6, 1998).

cable operators and broadcast signals immediately. The Commission also seeks comment on whether cable operators should be permitted to retransmit broadcast signals in a manner that would degrade the picture resolution received by consumers using the new digital receivers.^{2/}

Cable carriage will facilitate consumer access to the digital broadcast signals, and thereby speed the transition for consumers. There are significant public interest benefits to promoting a rapid and smooth transition. At the end of the transition, the public will recover a substantial block of spectrum that has been reserved for broadcasting since the early 1950's,^{3/} yet also will have a vastly improved free, over-the-air broadcast system with more stations than had been possible with the analog NTSC standard, substantially less spectrum occupied, vastly improved video and audio quality, and additional program channels and other new and innovative digital data services. The analog NTSC spectrum that will permit other important and essential services to be provided the American public will be released only at the end of the transition period, however, and the length of the transition period in part will depend upon consumers' access to the digital signals.

As noted above, Harris has been an active participant in the digital process since the early days of planning for an NTSC replacement. Over the past several years, Harris has assessed the consumer market through formal surveys as well as collected anecdotal reactions at *DTV Express* demonstrations. Several marketplace truths emerge from its DTV-related activities. One is that

^{2/} Supra note 1 at ¶¶ 39-51.

^{3/} Broadcasters will relinquish a total of 108 of the 402 megahertz currently reserved for broadcasting, or slightly less than 27 percent of their existing spectrum. See *Memorandum Opinion and Order on Reconsideration of the Fifth Report and Order* in MM Docket 87-268, 13 FCC Rcd 6860 (1998). Some of this spectrum already has been designated for other services, including public safety, see 47 U.S.C. § 337.

consumers that experience digital television first-hand are very impressed by its qualities and look forward to having these capabilities in their homes. Typical of consumer responses are questions about when signals will be broadcast, when the new television sets will be available at stores, and whether digital broadcast signals will work with cable systems. The following comments collected from *DTV Express* visitors are typical.

“I didn’t know that digital television was so much better than what I have today!”
“How can I get this in my home?”
“How soon will I be able to get HDTV?”

A Harris survey^{2/} earlier this year also found that consumers desire access to high definition programming and are willing to give up multiple channels in exchange for the better picture and sound available with HDTV. The survey questioned 700 consumers across the United States selected as representative of the U.S. population. Among the results were the following.

- 56 percent said they would give up channels in order to get high definition programming.
- 78 percent said they watch 10 or fewer channels per week.

Consumers also invariably ask whether the digital signals will be carried by their cable operator. Because close to 70 percent of Americans receive broadcast programming through cable systems, cable carriage of digital broadcast signals is essential to a rapid transition. Whether by mandatory must carry or by retransmission consent, the Congressional and Commission goals for a rapid transition will be substantially impaired unless the signals are carried on cable. Survey results showed the following.

- 91 percent felt cable providers should carry local stations’ high definition programming.

^{2/} See "Digital TV Survey Findings," Systems Research Corporation (June 1998).

- 80 percent indicated that they were not aware of the must-carry debate involving DTV.

The sensitivity of consumers to cable carriage also is demonstrated by reactions to tours at the *DTV Express*. Almost invariably one or more visitors will ask questions like “Will this work with my cable system?” or “What happens to the HDTV program [on my TV] when I watch it on cable?”.

It is clear that today’s consumers rely upon cable for broadcast signals, and therefore that carrying digital signals on cable will enable digital television to be viewed by many consumers who otherwise will not have access to the signals. Cable carriage will substantially help the transition and speed the transition period.

Harris is aware that suggestions have been made that cable may carry the broadcast digital signals, but only at a lower data rate. This downgrading would reduce picture resolution and may result in some other program-related services being impaired or eliminated from the cable system, even though transmitted as part of the DTV broadcast signal data stream. Harris believes that consumers should have access through cable to the full array of programs and services carried on the broadcast signal. Only with such access will many consumers have the certainty necessary to purchase the new digital television sets that will speed the transition. The Commission long has had rules requiring that cable carriage of broadcast signals be of adequate quality, and this concept was included by Congress when, in requiring cable carriage of local broadcast signals, material degradation of the signal was prohibited.^{8/} This long-standing principle has even more

^{8/} See 47 U.S.C. § 534(b)(4)(A) (“The signals of local commercial television stations that a cable operator carries shall be carried without material degradation.”)

importance in the digital era. It is essential that the Commission continue to prohibit cable from degrading in any fashion the broadcast signals carried on cable.

Finally, Harris notes that some consumer confusion already appears to exist about whether the first digital television sets will be able to receive the high definition or multiple standard definition programs on broadcast digital signals that are retransmitted on cable systems. Proper reception should not be a problem. The broadcasters' ATSC-compliant signal can be passed through cable systems on an existing 6 MHz "analog" channel without difficulty and fed directly to the television sets. Cable systems wishing to conserve bandwidth can carry the signal in either 64 or 256 QAM and remodulate it to 8 VSB at the cable box for connection to the receiver's standard jack.^{9/} Another alternative is to connect the cable box and the television receiver using component video connections.^{10/} Thus, there are multiple options for connecting cable systems to the new digital television sets, any one of which will permit consumers to access the higher quality and new functions of the digital broadcast signals.

V. CONCLUSION

As an equipment supplier, Harris has a single paramount interest: a rapid and smooth roll out of digital television for the American public. Harris has made substantial contributions to promote the analog-to-digital transition, and, from its work, Harris is convinced that cable carriage of broadcast signals, without any material degradation, is absolutely essential to speed the

^{9/} The Consumer Electronics Manufacturers Association (CEMA) published a voluntary standard, EIA-762, which offers a standardized interface for the QAM-to-VSB conversion.

^{10/} CEMA also has adopted a voluntary standard for component video, EIA-770.

transition. Without cable carriage, consumer confusion will reign and achieving the goals of Congress and the Commission for a rapid transition will be frustrated.

Respectfully Submitted,

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